

Azolla caroliniana survives in Queens kettle hole pond

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A small colony of the tiny pteridophyte, *Azolla caroliniana*, rarely reported in our range, survives in one of the kettle hole ponds, in the terminal moraine, in Queens Borough, New York City. Possibly it is the only occurrence, in the Torrey Club range, as others reported are probably now extinct. It is such a small thing, that it may be overlooked, and there may be other colonies in favorable places, but on the record they are extremely rare in this vicinity.

Norman Taylor, in his Flora of the Vicinity of New York, (1915) recorded *Azolla* only from a small pond in Clove Valley, Staten Island, and in the Morris Canal, near Bloomfield, N. J. The Morris Canal colony is certainly extinct, for the canal has been abandoned and dried up for ten years. The ponds in Clove Valley are now included in a city park and it is probable that "improvements" and recreational uses have eliminated *Azolla* there, too.

The Queens Borough colony is in one of a group of kettle hole ponds which have long been a resort for members of the Torrey Botanical Club and the New York Microscopical Society. Such unusual plants, for the territory of Greater New York, as *Orontium aquaticum*, *Riccia fluitans* and *Ricciocarpus natans* survive in these ponds. But recent parkway and park improvements have destroyed some ponds, and conventionalized others. The pond where the *Azolla* survives has been partly filled in by the landscaping of the new Grand Central Parkway. It is located about 1000 feet east of Rocky Hill Road, which runs north from Hillside Avenue, a mile north of Queens Village.

Azolla is a beautiful plant, under a hand lens, $\frac{1}{4}$ to $\frac{1}{2}$ inch long, $\frac{1}{8}$ to $\frac{1}{4}$ inch wide with its generally wedge shaped fronds, divided into minute branches, greenish with red tips, and in the mass gives a bronze effect. It floats on the surface, in this locality, amidst dense colonies of the floating Duck Meat, *Lemna*.

To any one finding it for the first time, like this writer, it would be puzzling where to look for it in the manuals. It suggests a minute floating hepatic, such as the *Riccias*. Dr. Marshall A. Howe who identified it for me, says the plant has been

used in Europe to keep down mosquitoes. In favorable conditions, it grows so densely as to cover the water with a mat that keeps out light and air, thus restricting the development of mosquito larvae. In the Queens locality it was not as dense as this, merely scattered plants, a few to the square inch, floating among the much denser *Lemna*. Since pending plans for further park development are likely to obliterate this kettle hole altogether, perhaps some of this *Azolla* could be transplanted into some pond or still stream where it would be permanently safe. It ought to do well in water gardens, and would make an unusual species and give an attractive color growing in masses.

QUEENS—LONG ISLAND, N. Y.